IN THE CLAIMS

Please AMEND the claims as follows:

1. (Currently Amended) A method for producing ethanol and methane from ~~biomass~~ a grain, comprising:

a) obtaining a mash in the presence of water by enzymatically liquefying and saccharifying flour of ~~a biomass~~ said grain, ~~with a~~ wherein said flour has a particle size of less than 1 mm; ~~in a conventional manner in the presence of water, thereby obtaining a mash;~~

b) obtaining ethanol and a pulp from said mash by fermenting and distilling ~~the substrate in a conventional manner, thereby obtaining ethanol and a pulp~~;

c) separating the pulp into a solid phase and a clear phase, wherein ~~a~~ said clear phase comprises ~~with a content of~~ solids of less than 1% ~~is obtained~~; and

d) obtaining methane from said ~~the~~ clear phase in a high-performance methane reactor.

2. (Currently Amended) The method according to claim 1, further comprising milling ~~biomass~~ grain to a particle size of less than 1 mm, thereby producing flour.

3. (Currently Amended) The method according to claim 1, wherein said grain comprises a hull components ~~are~~ that is ~~substantially~~ separated from ~~the~~ said flour prior to step a, or separated from ~~the~~ said mash prior to step b.

4. (Canceled)

5. (Currently Amended) The method according to claim 1, wherein said grain is selected from the group consisting of~~, in particular~~ wheat, rye, maize ~~or~~ and triticales. ~~is used as biomass, and the bran is separated after milling.~~

6. (Currently Amended) The method according to claim 1, wherein ~~the~~ said particle size of ~~the~~ said flour is less than 0.6 mm.

7. (Currently Amended) The method according to claim 1, further comprising separating protein present in said grain ~~wherein proteins present in the biomass are substantially separated~~ from ~~the~~ said flour prior to step a or separated from ~~the~~ said mash prior to step b or separated from ~~the~~ said clear phase of ~~the~~ said pulp in step c.

8. (Currently Amended) The method according to claim 7, wherein ~~the~~ said ~~separation~~ separating of ~~the~~ said proteins prior to step b comprises precipitation by cooling and separation of the precipitate.

9. (Currently Amended) The method according to claim 7, wherein the said ~~separation~~ separating of ~~the~~ said proteins in step c comprises precipitation by cooling and separation of the precipitate.

10. (Currently Amended) The method according to claim 9, further comprising agglomerating ~~wherein~~ yeast, fibers, solid substances, fat, ~~and/or~~ protein~~s~~ or combinations thereof present in ~~the~~ said pulp ~~are agglomerated by cooling and sedimented~~ prior to separation of ~~the~~ said pulp into solid phase and clear phase.

11. (Currently Amended) A method for producing ethanol and methane from a grain, comprising

a) obtaining a flour by milling ~~the~~ said grain to a particle size of less than 1 mm and separating ~~the~~ a bran and a hull component from ~~the~~ said flour;

b) obtaining a mash by enzymatically liquefying and saccharifying ~~the~~ said flour ~~in a conventional manner~~ in the presence of water, ~~thereby obtaining a mash~~;

c) ~~substantially~~ obtaining a protein and a substrate by precipitating ~~the~~ said proteins present in ~~the~~ said mash, wherein said precipitating is accomplished by cooling, sieving and drying~~,~~; ~~thereby obtaining the proteins and a substrate~~;

d) obtaining ethanol and pulp from said substrate by fermenting and distilling, ~~the substrate in a conventional manner, thereby obtaining ethanol and pulp~~;

e) separating ~~the~~ said pulp into a solid phase and a clear phase, wherein ~~a~~ said clear phase comprises ~~with a content of~~ solids of less than 1% ~~is obtained~~; and

f) obtaining methane from ~~the~~ said clear phase in a high-performance methane reactor.

12. (Currently Amended) The method according to claim 11, wherein ~~the~~ said solid phase and said clear phase of the pulp are separated in a decanter or a disk centrifuge. ~~is used for separation of the solid phase and clear phase of the pulp.~~

13. (Currently Amended) The method according to claim 11, wherein said clear phase comprises about 80% of the liquid from said ~~in the~~ pulp ~~is withdrawn with the clear phase~~.

14. (Currently Amended) The method according to claim 11, wherein said clear phase comprises ~~the content of~~ solids ~~in the clear phase is~~ of less than 0.5%.

15. (Previously Presented) The method according to claim 11, wherein said fermenting is carried out in a batch process, in a cascading process, or in a continuous process comprising a recycling of yeast.

16. (Currently Amended) A method for producing ethanol and methane from a grain, comprising

a) obtaining a flour by milling ~~the~~ said grain to a particle size of less than 1 mm, ~~preferably less than 0,6 mm,~~ and separating a bran and ahull components from ~~the~~ a flour;

b) obtaining a mash by enzymatically liquefying and saccharifying ~~the~~ said flour ~~in a conventional manner~~ in the presence of water~~, thereby obtaining a mash~~;

c) obtaining ethanol and a pulp from said mash by fermenting and distilling ~~the substrate in a conventional manner, thereby obtaining ethanol and pulp~~;

d) agglomerating yeast, fibers, solid substances, fat, ~~and/or~~ protein, or combinations thereof, ~~s~~ present in ~~the~~ said pulp by cooling and sedimenting ~~them~~;

e) obtaining a solid phase and a clear phase from said pulp, wherein said clear phase comprises ~~dividing the pulp into a solid phase and a clear phase, wherein a clear phase with a content of~~ solids of less than 1% ~~is obtained~~; and

f) obtaining methane from ~~the~~ said clear phase in a high-performance methane reactor.

17. (Currently Amended) The method according to claim 16, wherein ~~a~~ said high-performance methane reactor ~~is employed~~ comprises ~~, comprising~~ beads with a diameter of 1 to 2 mm in which methane bacteria are ~~immobilised~~ immobilized.

18. (Currently Amended) The method according to claim 17, wherein ~~the~~ said immobilized ~~immobilisation of the~~ methane bacteria in ~~the~~ said beads increases the space-time yield in ~~the~~ said reactor and preferably allows a space-time yield of at least 25 kg CSB/(m^3*d).

19. (Currently Amended) The method according to claim 16, wherein ~~the~~ said clear phase is pre-acidified and conditioned prior to said obtaining methane production in a high-performance methane reactor ~~comprises a pre-acidification/conditioning~~.

20. (Currently Amended) The method according to claim 16, wherein ~~the~~ said high-performance methane reactor comprises an Upflow anaerobic sludge blanket (UASB)-reactor.

21. (Currently Amended) The method according to claim 16, wherein ~~the~~ said high-performance methane reactor comprises an Internal Circulation (IC)-reactor.

22. (Currently Amended) The method according to claim 11, wherein ~~the crude~~ said ethanol is rectified and, if necessary, dehydrated, in order to obtain bioethanol or neutral ethanol.

23. (Previously Presented) The method according to claim 1, wherein more than 100 m^3 ethanol/day are produced.

24. (Previously Presented) The method according to claim 1, wherein more than 300 m^3 ethanol/day are produced.

25. (Currently Amended) The method according to claim 1, further comprising ~~wherein the~~ processing said clear phase of ~~the~~ said pulp ~~is~~ aerobically or anaerobically ~~purified~~ after said obtaining methane from said clear phase in a high-performance methane reactor ~~anaerobic purification in the methane reactor~~.

26. (Currently Amended) The method according to claim 25, wherein ~~the~~ said anaerobically~~/~~ or aerobically purified clear phase is added to ~~the~~ a conversion process as water for dilution.

27. (Currently Amended) The method according to claim 25, wherein ~~the~~ said anaerobically~~/~~ or aerobically purified clear phase is employed for the addition of water for liquefaction of ~~the~~ a flour.

28. (Currently Amended) The method according to claim ~~27~~11, further comprising obtaining a mixture by mixing ~~wherein the~~ said solid phase of ~~the~~ said pulp ~~is mixed~~ with said separated hull component~~,s~~ ~~and/or~~ said bran, or a combination thereof.

29. (Currently Amended) The method according to claim 11, wherein ~~the~~ said solid phase of ~~the~~ said pulp is mixed with said ~~separated~~ precipitated protein~~s~~ to obtain a mixture.

30. (Currently Amended) The method according to claim 28, wherein ~~the~~ said mixture is further dried.

31. (Currently Amended) The method for producing a feeding stuff, ~~and/or~~ a fertilizer, or a combination thereof comprising a method for producing ethanol and methane from grain, comprising

a) obtaining a flour by milling the grain to a particle size of less than 1 mm and separating the bran and hull components from the flour;

b) obtaining a mash by enzymatically liquefying and saccharifying said flour in the presence of water;

c) obtaining a protein and a substrate by precipitating the proteins, wherein said precipitating is performed by cooling, sieving and drying;

d) obtaining ethanol and pulp from said substrate by fermenting and distilling;

e) separating said pulp into a solid phase and a clear phase, wherein said clear phase comprises solids of less than 1%;

f) obtaining methane from said clear phase in a high-performance methane reactor; and

-wherein said solid phase is mixed with said separated hull components, bran, or combinations thereof to obtain a mixture ~~according to claim 28~~.

32. (Currently Amended) A method for producing energy, ~~and/or~~ heat, or a combination thereof, comprising a ~~the method for producing ethanol and methane according to claim 1,~~ method for producing ethanol and methane from grain, comprising:

a) obtaining a mash in the presence of water by enzymatically liquefying and saccharifying the flour of ~~a~~ said grain wherein said flower has a particle size of less than 1 mm , ;

b) obtaining ethanol and a pulp from said mash by fermenting and distilling;

c) separating ~~the~~ said pulp into a solid phase and a clear phase, wherein said clear phase comprises solids of less than 1% ; and

d) obtaining methane from ~~the~~ said clear phase in a high-performance methane reactor wherein said methane is converted to energy, heat, or a combination thereof. ~~and/or heat.~~

33. (Currently Amended) The method according to claim ~~32~~16, wherein ~~the~~ said solid phase of ~~the~~ said pulp is dried and burned for the generation of energy.

34. (Currently Amended) The method for producing energy, ~~and/or~~ heat, or a combination thereof comprising a method for producing ethanol and methane from grain, comprising

a) obtaining a flour by milling ~~the~~ said grain to a particle size of less than 0.6 mm and separating away bran and hull components from ~~the~~ said flour;

b) obtaining a mash by enzymatically liquefying and saccharifying ~~the~~ said flour ~~in a conventional manner~~ in the presence of water~~, thereby obtaining a mash~~;

c) obtaining ethanol and pulp by fermenting and distilling ~~the~~ said ~~substrate~~ mash ~~in a conventional manner thereby obtaining ethanol and pulp~~;

d) agglomerating yeast, fibers, solid substances, fat, ~~and/or~~ proteins, or combinations thereof by cooling and sedimenting them;

e) ~~dividing~~ separating ~~the~~ said pulp into a solid phase and a clear phase, wherein ~~a~~ said clear phase comprises ~~with a content of~~ solids of less than 1% ~~is obtained~~; ~~and~~

f) obtaining methane from ~~the~~ said clear phase in a high-performance methane reactor; and

g) generating energy by drying and burning ~~the~~ said solid phase of ~~the~~ said pulp. ~~for the generation of energy.~~

35. (Currently Amended) A method of using ~~the~~ a clear phase of a pulp from ~~the~~ a production of bioethanol wherein said clear phase comprises ~~with a content of~~ solids of less than 1% (w/v) ~~for producing methane, energy, and heat~~, comprising employing ~~wherein~~ a high-performance methane reactor ~~is employed for production of methane~~, comprising a beads with a diameter of 1 to 2 mm in which methane bacteria are ~~immobilised~~ immobilized and producing methane, energy, heat, or combinations thereof.

36. (Currently Amended) The method according to claim 35, wherein ~~the~~ said ~~immobilisation~~ immobilized ~~of the~~ methane bacteria in ~~the~~ said beads increases the space-time yield in the reactor and ~~preferably~~ optionally allows a space-time yield of at least 25 kg CSB/(m^3*d).

37. (Currently Amended) The method according to claim 35, wherein the method of preparing methane in a high-performance methane reactor further comprisinges ~~a~~ pre-acidification,/conditioning, or a combination thereof.

38. (Currently Amended) The method according to claim 35, wherein ~~the~~ said high-performance methane reactor comprises an Upflow anaerobic sludge blanket (UASB) reactor.

39. (Currently Amended) The method according to claim 35, wherein ~~the~~ said high-performance methane reactor comprises an International Circulation (IC) reactor.

40. (Currently Amended) A production plant for producing ethanol and methane from a ~~biomass~~ grain ~~in accordance with claim 1~~ by:

a) obtaining a mash in the presence of water by enzymatically liquefying and saccharifying the flour of said grain wherein said flower has a particle size of less than 1 mm;

b) obtaining ethanol and a pulp from said mash by fermenting and distilling;

c) separating said pulp into a solid phase and a clear phase, wherein said clear phase comprises solids of less than 1% ; and

d) obtaining methane from said clear phase in a high-performance methane reactor ~~further~~ comprising a means for fermentation, a means for distillation, and a high-performance methane reactor.

41. (New) The method of claim 16 wherein said particle size is less than 0.6 mm.

42. (New) The method according to claim 10, wherein said aggolmerating comprises cooling and sedimenting said pulp.